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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/903,242	07/11/2001	H. Dean Cubley	1981-00900 JMH	9493
23505	7590	01/05/2006	EXAMINER	
CONLEY ROSE, P.C. P. O. BOX 3267 HOUSTON, TX 77253-3267			CHEN, SHIH CHAO	
			ART UNIT	PAPER NUMBER
			2821	

DATE MAILED: 01/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/903,242

Applicant(s)

CUBLEY ET AL.



Examiner

Shih-Chao Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 6-14 is/are allowed.
6) ☒ Claim(s) 1-5 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 11 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 101. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hori et al. (U.S. Patent No. 5,594,455).

Hori et al. teaches in figures 3-4 a circuit board [33] having a thickness of $0.06 \pm 10\%$ inches (i.e. 1.6 mm, See col. 6, lines 23-26); a side-fed patch antenna (See

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Fig. 3a-3e) having the circuit board as a dielectric spacer; a ground plane [37] on a first side of the circuit board; a rectangular patch [31] on a second side of the circuit board opposite the first side; a feed [35] connected to a side of the patch halfway along the width; the patch antenna is configured to operate between 2.400 and 2.483 GHz (i.e. 2.2 GHz, See col. 6, lines 26-28); the patch [31] and feed [35] comprise copper cladding; a radio-frequency ("RF") module (i.e. transceiver) coupled to the patch antenna and configured to convert signals between baseband and an operating frequency range of the patch antenna.

Hori et al. discloses the claimed invention except for an FR-4 circuit board; the ground plane has a width of at least $1.875 \pm 10\%$ inches and a length of at least $2.25 \pm 10\%$ inches; the patch has a width of $1.5 \pm 10\%$ inches and a length of $1.164 \pm 10\%$ inches; the feed has a width of $0.07 \pm 10\%$ inches and a length of at least $0.625 \pm 10\%$ inches; and the patch and feed having a thickness of approximately 0.063 inches. It would have been an obvious matter of design choice to have different size and material of the circuit board, the ground plane, the patch and the feed, since such a modification would have involved a mere change in the size and material of a component. A change in size and material are generally recognized as being within the level of ordinary skill in the art.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hori et al (Cited above) in view of Plasson et al. (U.S. Patent No. 6,795,688).

Hori et al. teaches every feature of the claimed invention in paragraph 2 except for a USB bus interface that couples the RF module to a USB bus.

Plasson et al. teaches in figure 1 a USB bus interface [140] that couples the RF module [110] to a USB bus (See col. 9, lines 15-32).

In view of the above statement, it would have been obvious to one having ordinary skill in the art at the time the invention was made by using a USB bus interface that couples the RF module to a USB bus as taught by Plasson et al. in order to runs software that allows transceiver to interface with the operating system of Bluetooth-enable device (See col. 9, lines 15-32).

Allowable Subject Matter

5. Claims 6-14 are allowed.
6. The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the allowance of claims 6-14 is the inclusion of the limitation of a communication board located in the interstitial space, wherein the communications board includes a side-fed patch antenna having the circuit board as a dielectric spacer. It is this limitation found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

Response to Arguments

7. Applicant's arguments filed Oct. 31, 2005 have been fully considered but they are not persuasive.

Applicant argues that Hori does not teach the numerical parameters recited by claim 1. The significance of the numerical parameters recited by claim 1 should not be

disregarded, since these specific parameters may help characterize the invention of claim 1. This argument is not deemed to be persuasive because specific sizes/ parameters / materials/ tolerances, size of ground plane, size of radiator and feeder are all well within the level of ordinary skill where the design engineer would choose stock-shelf materials to manufacture the antenna. The substrate thickness, ground plane, patch and feed line dimensions determine the antenna's operating frequency and bandwidth. Without unexpected result, such parameters are found to be obvious to the skilled artisan.

Conclusion

8. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-Chao Chen whose telephone number is (571) 272-

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1819. The examiner can normally be reached on Monday-Friday from 7 AM to 4:30 PM, First Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shih-Chao Chen
Primary Examiner
Art Unit 2821

Shih-Chao Chen
SHIH-CHAO CHEN
PRIMARY EXAMINER

SXC
January 4, 2006